

**POSITION AND SPEED DETECTING DEVICE**

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**Abstract**

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**PROBLEM TO BE SOLVED:** To reduce sensitivity due to noise and enable position and speed detection with accuracy, by making a rotational position signal, calculated from an inducing signal having the frequency of an exciting signal as a fundamental wave and the exciting signal having phase difference through sum of products operation, follow phases through software PLL processing.

**SOLUTION:** For a microcomputer 102, an arithmetic operation is performed at a position and speed detecting section 101 using timing pulses output from a timing pulse generating section as an interrupt signal. The voltage of inducing signals  $V_{r1}$ ,  $V_{r2}$  and exciting signals  $V_{s1}$ ,  $V_{s2}$  is input to the microcomputer 102 from A-D converters 103-106. A signal varying with a rotational frequency obtained by expressing rotational position signals  $V_{e1}$ ,  $V_{e2}$  in first sum of products operation as rotational position  $\theta_r$ , and subtracting an exciting frequency component from the frequency of the inducing signals, is used in the software PLL processing on the microcomputer. The rotational speed is detected by determining the change in the position detected through software PLL processing on the microcomputer 102 using a differentiation element 120. Thus, the phase can be PLL-processed on software for a microcomputer or the like, and can be sufficiently followed.

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